

WHAT IS CLAIMED IS:

1. A gas storage and production system, comprising:

5 a gas storage formation, wherein gas is stored within pores of formation rock;

a production wellbore extending into the formation for withdrawing gas from the formation;

10 a storage wellbore extending into the formation for injecting gas into the formation; and

the production and storage wellbores intersecting at a wellbore junction.

2. The system according to Claim 1, wherein gas is only withdrawn through the production wellbore and gas is only injected through the storage
15 wellbore.

3. The system according to Claim 1, further comprising:

a main wellbore extending from the wellbore junction to the earth's surface; and

20 a tubular string positioned in the main wellbore,
gas being delivered to the storage wellbore via the tubular string for injection into the formation, and gas being delivered from the production

wellbore via an annulus formed between the tubular string and the main wellbore for production to the earth's surface.

4. The system according to Claim 1, further comprising:

5 a main wellbore extending from the wellbore junction to the earth's surface; and

a tubular string positioned in the main wellbore,

gas being delivered to the storage wellbore via the tubular string for injection into the formation, and gas being delivered from the production
10 wellbore via the tubular string for production to the earth's surface.

5. The system according to Claim 4, wherein the gas is alternately delivered to the storage wellbore via the tubular string and delivered from the production wellbore via the tubular string.

15

6. The system according to Claim 4, further comprising at least one valve connected to the tubular string, the valve providing communication between the tubular string and each of the storage and production wellbores.

20 7. The system according to Claim 6, wherein the valve alternately provides communication between the tubular string and each of the storage and production wellbores.

8. The system according to Claim 7, wherein the valve is remotely controlled.

5 9. The system according to Claim 7, wherein there are at least two of the valves, the valves being operated in response to a direction of gas flow in the tubular string.

10 10. The system according to Claim 1, further comprising:
a main wellbore extending from the wellbore junction to the earth's surface; and
a tubular string positioned in the main wellbore,
gas being delivered to the storage wellbore via an annulus formed between the tubular string and the main wellbore for injection into the formation, and gas
15 being delivered from the production wellbore via the tubular string for production to the earth's surface.

11. The system according to Claim 1, further comprising:
a sand control screen positioned in the production wellbore;
20 a tubular string connected to the sand control screen and extending toward the wellbore junction;

gravel positioned about the screen in an annulus formed between the screen and the wellbore; and

a retainer material positioned in the annulus between the gravel and the wellbore junction, the retainer material preventing displacement of the gravel.

5

12. The system according to Claim 11, wherein the retainer material is a cementitious material.

13. The system according to Claim 11, wherein the retainer material is
10 flowed into the annulus via at least one ported collar interconnected in the tubular string between the screen and the wellbore junction.

14. The system according to Claim 1, further comprising:
a main wellbore extending from the wellbore junction to the earth's
15 surface; and

injection and production tubular strings positioned in the main wellbore,
gas being delivered to the storage wellbore via the injection tubular string
for injection into the formation, and gas being delivered from the production
wellbore via the production tubular string for production to the earth's surface.

20

15. The system according to Claim 14, wherein the injection and production tubular strings are coaxial within the main wellbore.

16. The system according to Claim 14, wherein the injection tubular string is positioned within the production tubular string in the main wellbore.

17. A method of gravel packing a wellbore, the method comprising the steps of:

positioning a sand control device in the wellbore;

placing gravel in an annulus formed between the sand control device and

5 the wellbore; and

flowing a retainer material into the annulus, the retainer material preventing displacement of the gravel in the annulus.

10 18. The method according to Claim 17, wherein the flowing step further comprises the step of permitting the retainer material to set in the annulus, the retainer material when set abutting the gravel and preventing the gravel from displacing in the annulus.

15 19. The method according to Claim 18, wherein in the flowing step, the retainer material is cementitious, so that the retainer material is hardened when set.

20. The method according to Claim 18, wherein in the flowing step, the retainer material is gelatinous, so that the retainer material is gelled when set.

20

21. The method according to Claim 17, wherein in the positioning step, the sand control device is connected to a tubular string in the wellbore, and

wherein in the flowing step, the retainer material is flowed into the annulus between the tubular string and the wellbore.

22. The method according to Claim 21, wherein the flowing step further
5 comprises flowing the retainer material into the annulus via at least one ported collar interconnected in the tubular string.

23. The method according to Claim 17, wherein the flowing step is performed after the placing step.

24. A gas storage and production system, the system comprising:
a main wellbore extending from the earth's surface to a wellbore junction;
a storage wellbore extending from the main wellbore into a gas storage
formation; and

5 a production wellbore extending from the main wellbore into the
formation,

gas being injected from the main wellbore into the formation via the
storage wellbore, and gas being withdrawn from the formation into the main
wellbore via the production wellbore.

10

25. The system according to Claim 24, wherein at least one of the
storage and production wellbores is an extension of the main wellbore.

26. The system according to Claim 24, further comprising a tubular
15 string positioned in the main wellbore, the tubular string alternately delivering
gas to the storage wellbore and delivering gas from the production wellbore to the
earth's surface.

27. The system according to Claim 26, further comprising a valve
20 connected to the tubular string, the valve alternately providing communication
between the production wellbore and the tubular string, and between the storage
wellbore and the tubular string.

28. The system according to Claim 26, further comprising first and second valves connected to the tubular string, the first valve opening in response to a pressure differential from the tubular string to the storage wellbore, and the
5 second valve opening in response to a pressure differential from the production wellbore to the tubular string.

29. The system according to Claim 24, further comprising a sand control screen positioned in the production wellbore, and gravel disposed in an
10 annulus formed between the screen and the production wellbore.

30. The system according to Claim 29, further comprising cement in the annulus abutting the gravel and preventing displacement of the gravel axially relative to the annulus.
15

31. The system according to Claim 24, further comprising first and second tubular strings positioned in the main wellbore, the first tubular string delivering gas to the storage wellbore, and the second tubular string receiving gas from the production wellbore.
20

32. The system according to Claim 31, wherein the first and second tubular strings are concentrically disposed in the main wellbore.

33. The system according to Claim 31, wherein the first tubular string is within the second tubular string in the main wellbore.

5 34. The system according to Claim 24, further comprising a tubular string positioned within the main wellbore, the tubular string delivering gas to the storage wellbore, and an annulus between the tubular string and the main wellbore receiving gas from the production wellbore.

10 35. The system according to Claim 34, wherein gas flows from the production wellbore to the earth's surface substantially entirely through the annulus.